

The SBIR Program is an important part of the Army's science and technology program. SBIR allows the Army to tap the most innovative community in our country today — our small businesses.

Congress has strengthened and expanded the SBIR Program to increase dual use and technology transfer opportunities. The program provides our nation with significant technological and economic benefits, when innovative ideas are transformed into viable products.

We are proud to present this Fiscal Year 1995 Edition of Army SBIR Accomplishments.

This edition provides a glimpse of the commercial and military benefits generated from the commercialization of SBIR initiated technologies. Additional SBIR success stories appear at the end of

this brochure. As time goes by, more winners will have marketed and sold their innovative products.

The firms featured in this brochure have successfully transitioned their ideas into dual-use revenue-generating products. Their success stories represent a small part of the return on our SBIR investment. We salute these firms and all other participants in the Army SBIR Program.

## *Introduction*



*The Army SBIR Phase II Quality Awards Program recognizes Phase II companies for their technological achievement and contributions as well as their potential for success in Phase III. The above symbol indicates that the featured firm was recognized as a Quality Award Winner.*

# Mobile Electric Power

Analytic Power Corporation  
U.S. Army Research Office



***“Only with the support of the Army SBIR program could we research and develop this technology.”***

**1994  
Quality  
Award  
Winner**

Future soldiers must rely on portable, efficient power sources with silent operation and background - indistinguishable thermal and acoustic signatures. Analytic Power Corporation successfully developed an innovative fuel cell technology which meets these requirements.

The Century Series Fuel Cell operates on hydrogen and air and produces electricity and water.

It is compact, silent, and pollution free. Currently, the power source is being demonstrated at Natick Research, Development and

Engineering Center for soldiers' microclimate cooling systems.

Commercially, Analytic Power Corporation has sold the units to the Niagara Mohawk Gas Corporation and an overseas company.

## Phase III Impact

- Analytic Power Corporation sold two units commercially.
- Other commercial uses: medical emergency, natural disaster relief, and others.
- \$13,000 in sales to date.



***“Through SBIR, KVH products are widely recognized as the very best magnetic compasses available.”***

KVH developed a new technology compass which works well on the M1 Abrams tank and is compatible with the new Global Positioning System (GPS). This project was especially challenging because of the massive amounts of metallic armor on the Abrams, and the rotating turret which constantly changes the magnetic characteristics of the tank.

The Army enabled KVH to develop software that accepts vital steering information from GPS and displays it in an easy-to-understand format for vehicle



commanders and drivers. Moreover, KVH developed a complete new line of high end commercial compass products as a result of this SBIR-funded effort.

# *An Electronic Compass*

*KVH Industries, Inc.*

*U.S. Army Tank-Automotive  
and Armaments Command*

## **Phase III Impact**

- **The United States Marine Corps purchased \$1.5 million of digital compasses for its fleet during Operation Desert Storm.**
- **KVH has won a contract for \$9.6 million to produce a compass for a fleet of 1,000 foreign vehicles.**
- **KVH developed a new compass technology that surpasses those of its foreign competitors.**

# Noise Buster

Noise/Com, A part of  
Wireless Telecom  
Group, Inc.

U.S. Army Research  
Laboratory



***“SBIR helped us develop a global line of cost-effective products that will continue to impact the future of communications. All this because the U.S. Army saw the benefits of something called a noise generator.”***

Noise in electronics is inevitable. Noise is a natural phenomena that distorts a signal when it is exposed to a real world environment. Users of cellular telephones, modems and other methods of communications cannot talk to each other if noise isn't minimized or eliminated.

Noise/Com's product emits a measurable signal that allows the engineer to mimic interference encountered in the real world. This high frequency noise generator, the first of its kind, has had widespread commercial successes. More than 30

jobs were created through this effort. Customers include AT&T, Motorola, Compaq Computer, Ortel, Cirrus Logic, Ericsson (Sweden), Samsung (Korea) and many others.

## Phase III Impact

- Demand is increasing dramatically in the commercial market for applications in vehicle collision avoidance and remote imaging including airport security, ground mapping, etc.
- Noise/Com sells over 4,000 noise products annually, and generates over \$8 million in sales annually.



# Crystal Clear Water

*Los Alamos Technical  
Associates, Inc., MIOX  
Corporation*

*U.S. Army Tank-Automotive  
and Armaments Command*

Los Alamos Technical Associates, Inc. formed the MIOX Corporation to spin-off SBIR funded mixed oxidant water purification technology. MIOX manufactured its first production unit in November 1994. This followed over ten years of research and development, three years of laboratory testing, and one year of field testing at locations spanning from Bolivia to British Columbia.

MIOX water disinfection is more effective than chlorine-based systems; operates on site anywhere, runs off virtually any power source; requires little maintenance and training; maintains the EPA-required chlorine residual; and has no chemical after effects.

Treated water appears, smells, and tastes good.

Larger cells or several cells used together can be configured to produce even greater amounts of treated water on demand.

## Phase III Impact

- Three U.S. patents held and three others pending.
- The pictured MIOX logo is registered in the U.S. and 15 foreign countries.
- Sales are projected to reach \$2.5 million by the end of 1995.
- Technology used in Latin America, Bolivia, British Columbia, New Mexico, Colorado, and California.

# *Cruising the Information Highway*

*ENSCO, Inc.*

*U.S. Army Tank-Automotive  
and Armaments Command*



***“The program led to commercially successful products and created new employment opportunities.”***

ENSCO's system combines data originating from a variety of sources: X-rays, ultrasound, computer images, or infrared. The system is accurate, user-friendly and easy to master.

The Image Viewing and Analysis System (IVAS) is a powerful, yet inexpensive, image spreadsheet tool that operates on any Apple Macintosh II series or Quadra computer. It incorporates powerful and elegant data visualization routines that enable the user to quickly analyze and draw conclusions from raw or processed data. The user has access to text, graphs, charts, or images; can zoom in on a particular region of interest; or can play back a movie of several images.

Today, IVAS has evolved into a multi-use tool. The company is developing a real-time imaging system for baggage inspection. As the system evolves, it will benefit many diverse industries: medicine, transportation, and environmental engineering.

## **Phase III Impact**

- NOVA R&D, Inc. plans on incorporating IVAS in a proprietary x-ray imaging system.
- XICON, Inc. plans on customizing IVAS for medical x-ray purposes.
- Additional \$290,000 in non-SBIR revenue received from U.S. Army.
- Sales to date total more than \$50,000.



# Virtual Gamer

*Ralcon, Inc., Virtual I/O*

*U.S. Army Research  
Laboratory*

**1994  
Quality  
Award  
Winner**

Ralcon, Inc. designed and constructed full color, stereo helmet-mounted displays for the Army. Mountable on any helmet, their displays enable the soldier to view camera and computer generated signals overlaid on the real world. The result is a safe, ergonomically designed, optically-perfect, head-mounted display. Producing it has created forty new jobs.

The commercial i-glasses! are a lightweight, 3-D capable, full-color, high-resolution head mounted display that can be operated in either see-through or

immersive mode. The system allows people to play video games in a realistic, three-dimensional setting.

The company has developed a line of Personal Display Systems that includes a virtual reality helmet customized for the electronic and personal computer game markets.

## Phase III Impact

- **Two Virtual I/O personal display systems retail for under \$400 and will be available nationwide in 1995.**
- **Sales already total \$1.2 Million with more than 2,000 units sold.**

# Laser-Safe Eyes

*John Brown Associates Inc.*

*U.S. Army Medical Research  
and Materiel Command*



***“Because of SBIR, our customers now include military field personnel, civilian police, and medical and research laboratory workers.”***

There is a growing need for laser eye protection for military and civilian personnel. A laser beam causes permanent eye injury before you can blink. Army equipment protects against some but not all lasers. Current state-of-the-art laser goggles interfere with color perception.

John Brown Associates' innovative goggle protects against lasers while maintaining full natural color vision. It transmits only three narrow spectral bands, one red, one green and one blue, and is opaque to the rest of the visible spectrum.

It is popular with soldiers and police who report that vision

through it is excellent. Outdoor scenes appear bright and clear and are in full natural color like a pair of fine sunglasses, but without usual color distortion.

## Phase III Impact

- U.S. patent 5,173,808
- 48 pairs of goggles supplied to the U.S. Army
- Several thousand dollars worth of sales to hospitals
- Under evaluation by a major American Safety equipment firm for their product line





# Teams Work

*Klein Associates Inc.*

*U.S. Army Research Institute  
for the Behavioral and Social  
Sciences*

Most teams struggle with decision-making, without knowing what the difficulties are. Members of teams performing well cannot describe the process employed or the specific behaviors exhibited that produced their excellent team performance.

Advanced Team Decision Making package, describes the specific processes and behaviors of excellent teams. Other products help teams develop skills for observing their own team processes, and illustrate feedback skills that lead to improvement generating strategies.

Klein Associates, Inc. studied teams to develop a theory-based training program. Their researchers observed teams during decision-making exercises. A resulting product, The

***“As a result of this SBIR success, Advanced Team Decision Making is now embedded in the core curriculum at the Industrial College of the Armed Forces.”***

## Phase III Impact

- The Duke Power Company has used Advanced Team Decision Making to develop essential skills for the emergency response requirements of a nuclear power station.
- Phase III sales exceeded \$50,000 at the end of Phase II.
- One year after completion of Phase II, total Phase III sales exceed \$150,000.

# Hearing Through the Noise

*Sensor Electronics, Inc.*

*U.S. Army Medical Research  
and Materiel Command*



***“This SBIR project  
has allowed Sensor  
Electronics, Inc. to  
pursue development  
of other auditory  
safety and hearing  
devices.”***

Army pilots, tank and artillery crewmen, and soldiers operate in high level noise environments which require them to wear hearing protection while trying to understand speech.

The Electronic Earplug, is a rubber cylinder which protects the ear from high level noise. The hollow core of the cylinder houses a miniature earphone for voice communication. The earplugs were designed to protect against noise hazards and to withstand vibration and shock. They are contained within the ear, and are compatible with eyeglasses, military helmets, and chemical defense ensembles, thereby offering



advantages unavailable with earcup type hearing protection.

Civilian applications include heavy industry and manufacturing, firefighting and other emergency operations, airport ground functions. The equipment benefits any environment where loud noise is a hazard and communication among members of a team or crew is essential.

## Phase III Impact

- **U.S. Patent No. 4,985,926 and corresponding foreign patents for the earplugs**
- **Developing new hearing aids under grant with the National Institute of Health**
- **1994 fiscal year revenues of approximately \$300,000**



# *Real Time Graphics Displays*

*SRS Technologies*

*U.S. Army Space and  
Strategic Defense Command*

***“This SBIR project has broken ground on a new frontier of computer Graphic User Interfaces (GUI).”***

Army SBIR developments produced a library of display formats which can be adapted to a number of applications. The work will save lives of civilians and soldiers, and augment real-time displays for decision makers from all facets of industry.

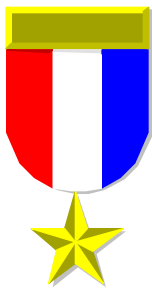
The Ground Based Radar Program needs display technology to augment current real-time display designs. This SBIR project has improved the ability of operators to perceive data during a real-time mission by augmenting data presentation methods. For real-time displays, user performance is

vital to mission success and casualty reduction.

Several commercial display applications exist, including test monitoring, emergency health diagnostics, air and ship board operations, traffic control, manufacturing plant monitoring, bank tellers, ATM displays, information Kiosks, and cockpit operations.

## **Phase III Impact**

- Sales total \$340,000
- Infinite new product possibilities; numerous commercialization markets.



## *The Top of the*

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### ***Alternative System Concepts, Inc.***

2 Inwood Circle, P.O. Box 694  
Pelham, NH 03076-0691  
(603) 635-3553

***VBIT (VHDL Built-in Test)  
Automatic Test Insertion Tool***  
***\$125,000***

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### ***Analytic Power Corporation \****

268 Summer Street  
Boston, MA 02210  
(617) 542-6352

***Mobile Electric Power***  
***\$13,000***

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### ***Analytical Software Inc.***

10939 McCree Road  
Dallas, TX 75238  
(214) 349-5977

***Telecommunications and  
Multimedia***  
***\$150,000***

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### ***Computational Mechanics Corporation***

601 Concord Street, Suite 116  
Knoxville, TN 37919-3382  
(615) 546-3664

***Bore Evacuator Design and  
Interactive Finite Element DFD  
Code***  
***\$130,000***

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### ***Delta Information Systems, Inc.***

300 Welsh Road, Suite 120  
Horsham, PA 19044-2273

***Desktop Video Teleconferencing  
System***  
***\$21,600***

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### ***ENSCO, Inc. \****

5400 Port Royal Road  
Springfield, VA 22151  
(703) 321-9000

***Cruising the Information Highway***  
***\$50,000***

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### ***EWS, Ltd.***

1 Journey's End  
Croton-on-Hudson, NY 10520  
(914) 271-5356

***Electro-Magnetic Pulse (EMP)  
Enclosures***  
***\$100,000***

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### ***Foster-Miller, Inc.***

195 Bear Hill Road  
Waltham, MA 02254  
(617) 290-0992

***High Barrier Polymeric  
Thermostabilized Meal Tray***  
***\$600,000***

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### ***J.A. Woollam Co., Inc.***

650 J Street, Suite 39  
Lincoln, NE 68508

***Materials Processing Analysis  
with In situ Ellipsometer***  
***\$100,000***

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### ***John Brown Associates Inc. \****

329 Main Avenue  
Stirling, NJ 07980

***Laser-Safe Eyes***  
***Several Thousand Dollars***

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### ***Klein Associates Inc. \****

582 E. Dayton-Yellow Springs Rd  
Fairborn, OH 45324  
(513) 873-8166

***Teams Work***  
***\$150,000***

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### ***KVH Industries, Inc. \****

110 Enterprise Center  
Middleown, RI 02842  
(401) 847-3327

***An Electronic Compass***  
***\$11.1 million***

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### ***Mak Technologies, Inc.***

380 Green Street  
Cambridge, MA 02139  
(617) 876-8085

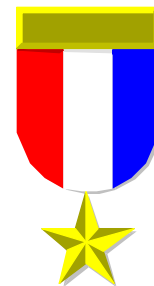
***The VR-LINK DIS Networking  
Toolkit***  
***\$2.5 million***

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### ***Materials and Electrochemical Research Corporation***

7960 South Kolb Road  
Tucson, AZ 85706  
(602) 574-1980

***Producing Intermetallic Powders  
with Improved Sinterability***  
***\$378,950***



# 1994 Class

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## **Los Alamos Technical Associates, Inc. \***

MIOX Corporation  
5500 Midway Park Pl. NE  
Albuquerque, NM 87109  
**Crystal Clear Water**

**\$2.5 million**

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## **Noise/Com, A part of Wireless Telecom Group, Inc. \***

E. 49 Midland Avenue  
Paramus, NJ 07652  
(201) 261-8797

**Noise Buster**

**\$8 million**

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## **North Star Research Corp.**

9931 Lomas N.E., Suite A  
Albuquerque, NM 87112  
(505) 296-3596

**Nested-High-Voltage Generator**

**\$100,000**

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## **Ortel Corporation**

2015 W. Chestnut St.  
Alhambra, CA 91803  
(818) 281-3636

**Ultra-Wide Band Optoelectronic Microwave Mixer for Phased Array Radar**

**\$275,000**

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## **Princeton Scientific Instruments, Inc.**

7 Deer Park Drive, Suite C  
Monmouth Junction, NJ 08852  
(908) 274-0774

**A Continuous Muzzle Reference System for Tank Ballistics**

**\$420,000**

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## **Ralcon, Inc. \***

8501 S. 400 W. Box 142  
Paradise, UT 84328  
(801) 245-4623

**Virtual Gamer**

**\$1.2 million**

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## **Rochester Photonics Corporation**

330 Clay Road  
Rochester, NY 14623  
(716) 272-3010

**Diffraction Optical Systems**

**\$ 675,000**

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## **Sensor Electronics, Inc. \***

56 Bridge Rd.  
Medford, NJ 08055-4205  
(609) 261-6777

**Hearing Through the Noise**

**\$300,000**

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## **Southwest Sciences Incorporated**

1570 Pacheo Street, Suite E-11  
Santa Fe, NM 87501  
(505) 984-1322

**Near-Infrared Diode Laser Hygrometer**

**\$280,000**

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## **SRS Technologies \***

Systems Technologies Division,  
500 Discovery Drive  
Huntsville, AL 35806  
(205) 971-7000

**Real Time Graphics Displays**

**\$340,000**

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## **TACAN Corporation**

2330 Faraday Avenue  
Carlsbad, CA 92008  
(619) 438-8362

**Multi-Channel Precision Temperature Measurement**

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## **TAI, INC.**

7500 Memorial Parkway, # 119  
Huntsville, AL 35802  
(205) 881-4999

**In-Line Defect Inspection System for Optical Fiber Drawing**

**\$90,000**

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## **Ultrox International**

2435 South Anne Street  
Santa Ana, CA 92704  
(714) 545-5557

**Ultrox D-TOX Process**

**\$150,000**

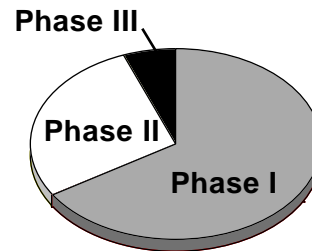
\* Companies and their projects are highlighted on the preceding pages of this brochure.

# Army SBIR

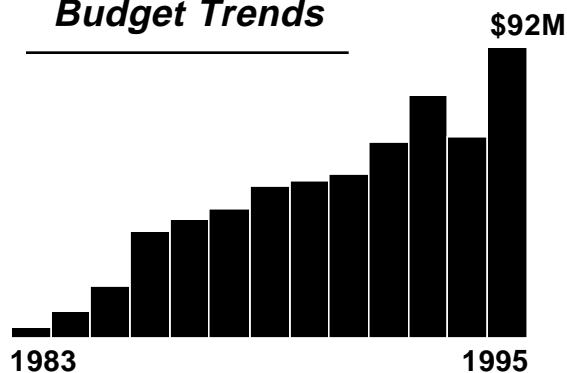
## ***Participating Commands***

- Army Materiel Command
- Corps of Engineers
- The Surgeon General
- Space and Strategic Defense Command
- Army Research Institute

## ***Cumulative Awards***



## ***Budget Trends***



*Army SBIR Program Management Office  
United States Army Research Office  
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5001 Eisenhower Avenue  
Alexandria, Virginia 22333-0001  
Phone: (703) 617-7425  
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# *Army SBIR Accomplishments*



1994

*United States Army  
Small Business  
Innovation Research  
(SBIR)*





# ***The Army and U.S. Small Business... A Powerful Combination***



## ***Phase I— Feasibility Study***

Phase I contracts are awarded to small businesses to study the feasibility of innovative concepts. The SBIR Program is competitive. Approximately one in ten proposals are funded. Phase I awards are generally limited to six-month, \$70,000 efforts.



## ***Phase II— Development***

Successful Phase I efforts may result in Phase II contracts for research, development, and prototype production. Phase II awards are for a period of up to two years with a funding ceiling of \$600,000.



## ***Phase III— Commercialization***

Phase III culminates all SBIR initiatives. In Phase III, a product, process, or service developed in Phase II is marketed outside the SBIR Program. Small firms achieve Phase III by private sector commercialization or through non-SBIR government follow-on contracts.